Leading by example

A new business centre at Okehampton in Devon which boasts some of the greenest credentials in construction – it has gained both BREEAM and CEEQUAL 'Excellent" ratings – was the winner in the Best Sustainability Project category of this year's LABC National Built In Quality Awards

The town of Okehampton sits on the edge of the Dartmoor National Park in West Devon, and the new Okehampton Business Centre, situated to the north of the town, is the imaginative result of a partnership between West Devon Borough Council, who managed the project, and the South West of England Regional Development Agency (SWERDA).

The 26-acre greenfield site was undulating grassland sloping steeply to a stream on the eastern boundary, with a railway embankment to the northern boundary. Situated within 200 metres of the A30, it provides direct transport links to the M5 to the north and the A30 to the south.

The site required significant re-grading to create level plateaus, and where creative civil engineering designs allowed a balance of cut to fill to prevent export of material to landfill.

The business centre was the first building to be completed on the site and will set a high standard for the remaining plots, which are owned by SWERDA.

The brief to the architect and engineers was clear: to design and deliver an energy efficient building comprising business units for new and growing businesses, maximising the use of natural light and ventilation, as well as achieving BREEAM and CEEQUAL excellent ratings. Renewable energy, optimum use of natural light and ventilation, rainwater harvesting, and sustainable drainage were included in the brief, along with a target of carbon emissions 80% lower than conventional sources. Cycling facilities, a Green Travel plan, and a low maintenance landscape design promoting biodiversity and native species were also part of the design specification.

"CREATIVE CIVIL ENGINEERING DESIGNS ALLOWED A BALANCE OF CUT TO FILL TO PREVENT EXPORT OF MATERIAL TO LANDFILL"

It also boasts the following green features:

- A construction waste plan with only 16% of waste going to landfill, with the remainder sorted and re-cycled.
- Control of the impact of the construction process on the water environment using water quality monitoring, pollution prevention measures in the form of straw bales and a construction exclusion zone adjacent to the stream
- Two large sustainable drainage ponds, with native planting designed for the highest standard to protect the adjacent watercourse and downstream properties.
- External lighting designed to minimise the affect on bat flight paths, by automatic dimming
- Building materials were selected for low environmental impact from the massive glulam frame to eco paints as specified by the BRE's green guide
- All timber from a certified source and the main

Glulam timber frame supplied by a local company

- The building's structure and fabric is designed for low energy consumption, including airtight construction, levels of insulation over and above those required by Building Regulations, high performance glazing, minimal thermal bridging, daylight admittance to all occupied rooms, and natural ventilation
- Rainwater is collected, filtered and pumped to flush toilets and water the native planting scheme, which has been selected to enhance biodiversity.
- Low use cisterns, showers and taps with leakage detection to save water
- Lighting provided by the latest in high efficiency lamps and luminaires, with automatic dimming and presence detection to reduce unnecessary usage
- Renewable energy in the form of wood pellet fuel boiler, provides 70% of the building's needs. Heat is delivered mainly by underfloor heating.
- A 6 kW wind turbine generates between up to 50% of the annual electricity demand.
- In addition 8.4 kW of photovoltaic panels are mounted on the south facing roof, to generate up to 20% of the building's electricity needs
- Both the wind turbine and the photovoltaics are connected to the national grid, allowing excess electricity to be exported.

The wind turbine, photovoltaics and biomass boiler will be monitored to compare the design intent against the actual electricity generation and heat production. A weather station has been provided on the roof measuring wind speed, wind direction and solar radiation. This will provide valuable information for future installations.

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16 units – 3 workshops and 13 offices – have been created, incorporating a high degree of environmentally friendly design. Contractor ROK (Exeter) also received a local Sustainability Award for the development, presented by Devon Building Control Partnership, after it provided the building control service for the units.

So, with minimal impact on the environment and cheap to run; this is a resounding success story that should encourage sustainability in other developments as well as being a great example to follow.

Funding for the project came from the South West of England Regional Development Agency, West Devon Borough Council, and the European Development Fund Objective 2 Programme.